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# *Satoyama* Conservation and Public Intentions with Regard to Conservation Activities

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武部 隆・富吉 満之「里山保全と保全活動に対する住民の意向」

本稿では、里山保全に対する地域住民の認識と里山保全活動に対する地域住民の意向について、千葉県鴨川市、高知県梺原町、岐阜県恵那市を対象に実施したアンケート調査の結果を分析することにより明らかにし、非営利団体（NPO）が里山を保全する場合と、民間企業が保全する場合と、行政（市町）が直接保全する場合の三者を比較しながら、今後の里山保全の望ましいあり方について考察した。

考察の結果、①都市民との混住化がすすむ鴨川市では、里山保全主体としてNPOへの期待が大きい、これは同市内にある里山保存団体の積極的な保全活動が地域住民に広く認知されていることがその理由の一つとしてあげられること、②高齢化が極端にすすみ独居世帯の比率が高い梺原町では、行政に対する期待が大きくNPOによる保全活動はあまり期待できないこと、③農家・林家が里山を保全するのが最適だと考える住民が多い恵那市では、NPOへの期待は少なくないものの、その期待は鴨川市におけるよりは小さなものであること、④3地域全体でみた場合、同市（町）内の里山保存団体を地域住民に知ってもらうことで、地域住民の里山保全に対する認識を深め、結果的に里山保全への期待の程度を今以上に大きくすることが可能であること、⑤同様に、行政の里山保全活動を地域住民に知ってもらうことは、一方で地域の里山保存団体の評価を高める方向に作用すること、等を明らかにすることができた。

## 1. Introduction

In this paper, we examine the local residents' perception and intentions of and for *satoyama* conservation and activities around it. For the purpose of evaluating the conservation entities in charge of *satoyama* conservation activities, we surveyed three regions—Kamogawa city in Chiba Prefecture, Yusu-hara town in Kochi Prefecture, and Ena city in Gifu Prefecture—by administering a questionnaire. The results are analyzed and examined here to understand the local residents' perception of *satoyama* conservation and their intentions with regard to conservation activities<sup>1)</sup>.

We also compare the three varieties of *satoyama* conservation—conservation by NPOs (nonprofitable organizations), by enterprises, and by the administrations of cities and towns—and consider the best possible way to conserve *satoyama* in the future.

In the next chapter, we will summarize the questionnaire survey and the target regions,

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and in the third chapter, we will consider, based the survey results, the public perception of *satoyama* conservation. In the fourth chapter, we will examine public intentions by region with regard to *satoyama* conservation activity, especially in terms of evaluation of entities in charge of such conservation activity.

## 2. Summary of Questionnaire Survey and Target Regions

### (1) Summary of Questionnaire Survey

The questionnaire survey was carried out subsidized by JSPS Grant-in-Aid for Scientific Research (C), Principal Investigator: Takashi TAKEBE, Title of Project: “The Influence of NPO Activities on Japanese Agriculture and Farm Village Environment.” The survey theme, target, and method are as follows:

- Survey theme: Questionnaire survey on organizations that conduct conservation activities.
- Survey target: Residents of Kamogawa city, Chiba Pref., Yusuhara town, Kochi Pref., and Ena city, Gifu Pref.
- Survey method: Distribution of questionnaire to households chosen at random in Kamogawa city, Chiba Pref., Yusuhara town, Kochi Pref., and Ena city, Gifu Pref. Number of questionnaires distributed: 1,138 to Kamogawa, 558 to Yusuhara, and 1,304 to Ena<sup>2)</sup>.
- Survey items: Attribute items (7 items of region, gender, age, number of household members, years of residence, occupation, and annual income) and question items (47 items such as “Do you know *satoyama* existing in your city/town? (SA),” “Have you been to the *satoyama*? (SA),” “For what purpose do you go there? (MA)”<sup>3)</sup>). Here, SA stands for single answer and MA for multiple answers<sup>4)</sup>.
- Survey period: From January 20, 2009, to February 15, 2009.
- Number of valid responses: 290 from Kamogawa city (valid response rate: 25%), 233 from Yusuhara town (42%), and 433 from Ena city (33%), thus, 956 (32%) in total.

### (2) Summary of Target Regions

The questions were framed using the specific names of local NPOs. The Oyama Senmaida Hozonkai (Oyama Terrace Paddy Field Conservation Organization) was referred to in the questionnaire for Kamogawa city in Chiba and so was the Unincorporated Nonprofit Organization of Senmaida Furusatokai (Terrace Paddy Field Hometown Organization) in that for Yusuhara town in Kochi, and the Ena-shi Sakaore Tanada Hozonkai (Organization for Terrace Paddy Field Conservation in Sakaore, Ena city) in that for Ena city in Gifu. First, let us briefly discuss the three target regions in order to understand the local environments for

the activities of these three NPOs.

1) Kamogawa city, Chiba Pref.

Kamogawa city is located in the south-eastern part of the Boso Peninsula and faces the Pacific Ocean. The climate is mild and comfortable, typical for the south Boso towns; the yearly average temperature is 15.8°C, and the yearly rainfall is 1,884 mm. The city is also blessed with a beautiful coast line and rich forest resources. Its population is about 36,000, most of which is aging; for those over 60 years of age, the older the generation is, the larger its share in the population distribution, and for those under 60, the younger the generation, the smaller its share in the population distribution as compared to the national average. The city covers an area of 191.3 km<sup>2</sup>, with a population density of 186 people/km<sup>2</sup>. In February 2005, the former Kamogawa city and the former Amatsukominato town were merged into the present Kamogawa city.

The city's main agricultural products are rice, livestock, flowers, and vegetables. Rice growing is the very basis of agriculture, and Nagasa-mai is the famous rice brand from the city. The forest covers 35% of the city area (44%, including waste land), and in order to conserve it, much of the usage of forest spaces is planned. Fisheries and tourist industries are also active and diverse approaches are being used, such as enhancement of the marine recreation functions in harmony with fisheries, active exchanges between the urban areas and the fishing villages, etc. A large portion of commerce and manufacturing in Kamogawa is food-related, dealing with agricultural/livestock products or fishery products. The scale of management has shown a tendency to become smaller or stagnate in recent years, however, and new development by means of reorganization is the new theme.

Five universities, including Josai International University and Waseda University, are located within the city, and their activities return intellectual/cultural property to the region.

Kamogawa city, with its blue and clear ocean and green and rich mountains, is thus struggling to promote the local economy and improve education and culture in the collaboration of industry, academia, citizens, and government, so as to create a "tourism-exchange city based upon its nature and history," that is, a brilliant hometown collaborated on by the whole city. It is necessary to place and understand the specified NPO of Oyama Senmaida Hozonkai in the context of such a movement.

2) Yusuhara town, Kochi Pref.

Yusuhara town lies in the western part of Kochi Prefecture. It is a mountain town rich in natural resources and beauty, at the foot of the grand highland of Shikoku Karst and at

the upper reach of the Shimanto River. It is comparatively cool in summer and very cold in winter. Because of the range of altitudes, both daily and yearly temperature ranges are wide. In winter, snow accumulates even in the central part of the town. The yearly average temperature is 13.4°C, and the yearly rainfall is 2,630 mm. The area of the town is 236.5 km<sup>2</sup>, and 91% of this area is covered with forests. The population is about 4,000 (aging is progressing even more than in the case of Kamogawa, as compared with the national average), and the population density is 17 people/km<sup>2</sup>.

Rice growing and facility horticulture of eggplants and other vegetables are principal in the cultivation sector and calf breeding in the stockbreeding sector. In the unfavorable agricultural environment of recent years, the lack and aging of farming labor are serious issues and the number of farming households is constantly decreasing. Forestry is an important industry in the town. However, because of the stagnant low price of wood, decrease in and aging of the forestry labor force, etc., the present systems of artificial forest management and reforestation need to be urgently reexamined. On the other hand, the water source and land conservation functions of forests must be maintained and reinforced, and how to reorganize the management of forests and forestry is getting to be a pressing issue.

Most of the shops are small and run by private owners, and as the traffic network is getting more convenient, the residents tend to go shopping out of their town more frequently than ever. In terms of manufacturing, gun factories, auto-parts factories, and sewing factories provide the townspeople with important work places. As industries relating to construction, building, and transporting are small in management scale, it is hard to expect too much from them.

Yusuhara town is thus in problematic circumstance, but under the slogan “Yusuhara, a town above the cloud,” people are endeavoring for *machi-zukuri* (community planning) on the basis of good health (life), education (heart), and environment (relief), helping each other hand in hand. Senmaida Furusatokai needs be looked at in such a context.

### 3) Ena city, Gifu Pref.

Ena city is located in the south-eastern part of Gifu Prefecture. It is comparatively cool in summer but severely cold in winter, and this tendency is enhanced in the deeper mountain areas. It is dry and the rainfall (or snowfall) is low in winter. The yearly average temperature is 14.1°C, and the yearly rainfall is 1,490 mm. The population is about 54,000, and aging is advancing here too; with regard to those over 60 years of age, the older the generation is, the greater its share in the population distribution, and for those under 60 years of age, the younger, the lower, compared with the national average. However the degree of aging

is lower than in the two regions previously discussed. The city covers an area of 504.2km<sup>2</sup>, with a population density of 108 people/km<sup>2</sup>. In October 2004, the former Ena city, Iwamura town, Yamaoka town, Akechi town, Kushiara village, and Kamiyahagi town were merged into the present Ena city.

The agricultural products of Ena city are rice, livestock, and vegetables, out of which pork production is significant. *Kanten* (Japanese agar-agar) production is also widespread because of the cold winter and dry weather suitable for this. In the forest, which covers about 75% of the city area, *hinoki* (Japanese cypress) and cedar production is increasing slightly, but the management of afforestation of artificial forests and reforestation needs to be reexamined. In terms of commerce, retail of food/drink and wholesale of building-related materials are the main trades. In manufacturing, the plastics industry and the ceramic and stone clay industry offer work to the citizen.

In this situation, the citizens are now united in their efforts to realize “An Exchange City in the Harmony of People, Region, and Nature,” in practice, 1) a convenient and beautiful community (*machi* in Japanese) to live in comfort, 2) an attractive community full of vitality and creativity, 3) a community that fosters people who cultivate sympathy and culture, and 4) a sound and warm-hearted collaborative community. When we discuss Ena-shi Sakaore Tanada Hozonkai, it should be placed in this context.

### 3. The Public Perception of *Satoyama* Conservation According to the Questionnaire Survey Results

#### (1) Public Perception of *Satoyama* Conservation by Region

In this chapter, we look at the public perception of *satoyama* conservation, based on the questionnaire survey results. Seven attribute items and nine question items significant for cross tabulation were picked up. With regard to these 16 items, 37 question items that enable cross tabulation were cross-tabulated, and the independence tests were applied. The result was that among the seven attribute item crosstabs, the number of question items significant at the 1% or 5% level was largest in the by-region tabulation (29 question items). Among the question item crosstabs, the number of question items significant at the 1% or 5% level was largest in the by-category tabulation of Q2-6 “Do you know the *satoyama* conservation activity by the administration?” (32 question items), and was second largest in the by-category tabulation of Q2-1 “Do you know the NPO for *satoyama* conservation in your city/town?” (31 question items).

Therefore, in this section, we will examine the by-region crosstab results, and in the next

section, we will focus on and examine the question items significant at the 1% or 5% level among the Q2-6 and Q2-1 by-category crosstab results.

Table 1 Residents' perception of satoyama conservation by region

% (number of samples)										
1% significant	Q1-2: Have you been to the satoyama?(SA)			5% significant	Q1-5:Did you know the explanation of satoyama?(SA)				1% significant	Q2-1: Do you know
	Yes	No	Total		I knew whole of it	I knew part of it	I knew nothing of it	Total		
Kamogawa	91.9	8.1	100.0 (272)	Kamogawa	55.0	40.1	5.0	100.0 (282)	Kamogawa	84.4
Yusuhara	89.2	10.8	100.0 (213)	Yusuhara	65.9	31.8	2.2	100.0 (223)	Yusuhara	79.2
Ena	82.4	17.6	100.0 (393)	Ena	63.6	34.3	2.1	100.0 (428)	Ena	52.2
the NPO in your city/town?(SA)		1% significant	Q2-3:What do you think about the NPO activity?(SA)				1% significant	Q2-4:Do you know satoyama cons. activity by the enterprises?(SA)		
I don't know	Total		They are doing well	Not so well	I don't know, etc.	Total		I know	I don't know	Total
15.6	100.0 (289)	Kamogawa	77.7	5.9	16.4	100.0 (238)	Kamogawa	35.9	64.1	100.0 (287)
20.8	100.0 (226)	Yusuhara	71.2	6.8	22.0	100.0 (177)	Yusuhara	56.4	43.6	100.0 (225)
47.8	100.0 (429)	Ena	60.8	5.9	33.3	100.0 (222)	Ena	33.5	66.5	100.0 (424)
1% significant	Q2-6:Do you know satoyama cons. activity by the administration?(SA)			1% significant	Q2-9:Organization suitable for conservation(top choice)?(SA)					
	I know	I don't know	Total		Farmer/For-est owner	Admnstration	Enterprises	JA/Forestry coop.	NPO	Total
Kamogawa	63.4	36.6	100.0 (284)	Kamogawa	37.2	19.2	0.8	2.7	40.2	100.0 (261)
Yusuhara	77.0	23.0	100.0 (222)	Yusuhara	42.7	43.8	2.6	5.7	5.2	100.0 (192)
Ena	40.1	59.9	100.0 (426)	Ena	45.9	16.1	2.8	7.0	28.2	100.0 (386)
1% significant	Q2-9:Organization suitable for conservation(second choice)? (SA)									
	Farmer/For-est owner	Adminstrtion	Enterprises	JA/Forestry coop.	NPO	Total				
Kamogawa	23.1	29.5	6.0	13.5	27.9	100.0 (251)				
Yusuhara	16.4	30.6	7.7	29.5	15.8	100.0 (183)				
Ena	16.8	25.4	7.5	23.0	27.3	100.0 (387)				

Let us begin with the by-region crosstab. Table 1 shows the by-region results with regard to the public perception of *satoyama* conservation. Among the people who knew of the *satoyama* in their city/town, those who had been to the *satoyama* were the greatest number, 92%, in the case of Kamogawa, followed by 89% in Yusuhara, and 82% in Ena. The proportion of those who knew exactly what *satoyama* was the largest in Yusuhara (66%), followed by 64% in Ena and 55% in Kamogawa. The proportion of those who knew of the NPO for *satoyama* conservation in their city/town reached 84% in Kamogawa, and the proportions in Yusuhara (79%) and in Ena (52%) followed. The proportion of those who thought that the NPO was active was largest in Kamogawa (78%) and next largest in Yusuhara (71%), followed by in Ena (61%). The proportion of those who knew about the *satoyama* conservation activities was largest in Yusuhara (56%), followed by that in Kamogawa (36%) and in Ena (34%). The proportion of those who knew about the *satoyama* conservation activities of the administration was largest in Yusuhara (77%), next largest in Kamogawa (63%), and relatively small in Ena (40%).

Next, for Q2-8 (1) to (7) on the impression the residents get from the three types of conservation entities, i.e., NPOs, enterprises, and the administration, answers were evaluated

by assigning the answer “Agree” a value of +1, “Neither” a value of 0, and “Disagree” a value of −1. The result by region is shown in Table 2. In Kamogawa city and Ena city, the public had the best impression of the NPO, out of the three entities, on every item except for that pertaining to information disclosure in Kamogawa. In Yusuhara town, in contrast, the impression of the administration as a *satoyama* conservation entity is the best on every item except for that pertaining to cooperation with the residents.

Table 2 Residents' impression of *satoyama* conservation entities by region

	Number of samples	Average	score Region		
			Kamogawa	Yusuhara	Ena
Q2-8(1): Information disclosure enough(NPO)?	582	−0.21	−0.17	−0.04	−0.33
Q2-8(1): Inf. disclosure enough(enterprises)?	519	−0.48	−0.59	−0.23	−0.54
Q2-8(1): Inf. disclosure enough(administration)?	592	−0.19	−0.16	0.13	−0.39
Q2-8(2): Continuity enough (NPO)?	607	0.22	0.40	0.19	0.10
Q2-8(2): Continuity enough (enterpr.)?	532	−0.20	−0.22	0.07	−0.31
Q2-8(2): Continuity enough (admin.)?	609	0.19	0.28	0.47	−0.02
Q2-8(3): Knowl'dge & technique enough (NPO)?	580	0.38	0.58	0.23	0.31
Q2-8(3): Knowl'dge & tech. enough (enterpr.)?	514	−0.07	−0.01	−0.07	−0.11
Q2-8(3): Knowl'dge & tech. enough (admin.)?	573	0.18	0.29	0.29	0.04
Q2-8(4): Personnel enough (NPO)?	499	0.30	0.50	0.21	0.20
Q2-8(4): Personnel enough (enterpr.)?	428	−0.15	−0.04	0.06	−0.33
Q2-8(4): Personnel enough (admin.)?	506	0.00	0.08	0.31	−0.26
Q2-8(5): Fund efficiency enough (NPO)?	328	0.20	0.33	0.19	0.12
Q2-8(5): Fund efficiency enough (enterpr.)?	280	0.04	0.00	0.20	−0.03
Q2-8(5): Fund efficiency enough (admin.)?	345	−0.00	0.04	0.25	−0.20
Q2-8(6): Coop. with residents enough(NPO)?	508	0.39	0.49	0.53	0.24
Q2-8(6): Coop. w. res. enough(enterpr.)?	405	−0.01	−0.02	0.20	−0.11
Q2-8(6): Coop. w. res. Enough(admin.)?	503	0.17	0.24	0.44	−0.08
Q2-8(7): Coop.w. other organizations (NPO)?	389	0.22	0.38	0.27	0.07
Q2-8(7): Coop.w. other organizations (enterpr.)?	333	−0.08	−0.04	0.17	−0.22
Q2-8(7): Coop.w. other organizations (admin.)?	405	0.08	0.18	0.39	−0.18

Lastly, as shown in Table 1, we see an interesting difference in the answers about the “organization suitable for conservation (the top choice)”: NPO in Kamogawa city (40%), the administration in Yusuhara town (44%), and farmers and forest owners in Ena city (46%). Similarly, the answers to the question about the second choice of a suitable organization are the administration both in Kamogawa (30%) and in Yusuhara (31%), and NPO in Ena (27%).

## (2) Residents' Perception of *Satoyama* by Degree of Recognition

In this section, we focus on and examine the question items significant at the 1% or 5% level in the by-category crosstab results for Q2-6 “Do you know *satoyama* conservation activity by the administration?” and Q2-1 “Do you know the NPO for *satoyama* conservation in your city/town?”

These crosstab results are remarkably similar. We, therefore, first explain mainly the by-category results of Q2-1, and later, pick up only the question items that were determined to have no significant difference at the 1% or 5% level in Q2-1 but were found to be significant



in Q2-6.

Table 3 shows the residents' perception of *satoyama* conservation by degree of recognition, in which the former ten small tables are by category of Q2-1, and the latter two are by category of Q2-6. Among “the people who know the NPO in their city/town” (hereafter abbreviated as Knowing), 97% of them know that there is *satoyama* in their city/town, and even among “the people who don't know the NPO in their city/town” (hereafter abbreviated as Not-Knowing), 89% of them know that there is *satoyama* in their city/town. Among those who know there is *satoyama* in their city/town, 92% of Knowing and 75% of Not-Knowing have been there.

Table 3 Residents' perception of satoyama conservation by recognition degree

% (number of samples)										
1% significant Q2-1	Q1-1: Do you know satoyama existing in your city/town? (SA)			1% significant Q2-1	Q1-2: Have you been to the satoyama ? (SA)			1% significant Q2-1	Q1-5: Did you know the explanation	
	Yes	No	Total		Yes	No	Total		The whole of it	Part of it
Knowing	97.0	3.0	100.0 (636)	Knowing	91.9	8.1	100.0 (616)	Knowing	67.6	30.9
Not-knowing	88.6	11.4	100.0 (290)	Not-knowing	75.0	25.0	100.0 (256)	Not-knowing	49.1	45.0
of satoyama? (SA)		1% significant Q2-1	Q2-4: Do you know satoyama cons. activity by the enterprises? (SA)		1% significant Q2-1	Q2-6: Do you know satoyama cons. activity by the administration? (SA)			5% significant Q2-1	
Not at all	Total		I know	I don't know		Total	I know	I don't know		Total
1.6	100.0 (632)	Knowing	50.2	49.8	100.0 (637)	Knowing	72.7	27.3	100.0 (637)	Knowing
5.8	100.0 (291)	Not-knowing	17.0	83.0	100.0 (294)	Not-knowing	19.9	80.1	100.0 (291)	Not-knowing
Q2-9: Organization suitable for conservation(top choice)? (SA)						5% significant Q2-1	Q2-9: Organization suitable for conservation			
Farmer/For-est owner	Admnstration	Enterprises	JA/Forestry coop.	NPO	Total		Farmer/For-est owner	Admnstration	Enterprises	JA/Forestry coop.
42.2	23.4	1.9	4.0	28.4	100.0 (580)	Knowing	11.8	10.5	52.1	14.3
42.1	23.8	2.8	8.7	22.6	100.0 (252)	Not-knowing	15.7	16.1	40.8	14.3
(5th choice)? (SA)		5% significant Q2-1	Q3-1: Willing contribution amount to the NPO? (SA)					1% significant Q2-1	Q3-2: Willing contribution amount to the	
NPO	Total		Not willing to pay	under ¥1,000	¥1,000-¥2,000	¥2,000 and over	Total		Not willing to pay	less than ¥1,000
11.3	100.0 (524)	Knowing	15.0	31.9	24.7	28.3	100.0 (586)	Knowing	23.3	32.3
13.0	100.0 (223)	Not-knowing	13.1	44.2	23.4	19.3	100.0 (274)	Not-knowing	24.5	41.8
enterprises? (SA)			1% significant Q2-1	Q3-3: Willing contribution amount to the administration? (SA)				1% significant Q2-6	Q1-6: Spending	
¥1,000-¥2,000	¥2,000 or more	Total		Not willing to pay	less than ¥1,000	¥1,000-¥2,000	¥2,000 or over			Total
22.4	22.0	100.0 (576)	Knowing	19.4	31.3	24.1	25.3	100.0 (582)	Knowing	69.4
19.8	13.9	100.0 (273)	Not-knowing	19.4	43.2	18.7	18.7	100.0 (273)	Not-knowing	55.6
tax payer money on satoyama conservation (SA)				1% significant Q2-6	Q2-3:What do you think about the NPO activity?(SA)					
Disagree	Depends on the amount	No idea	Total		Doing well	Not so well	No idea	Total		
1.8	21.2	7.6	100.0 (510)	Knowing	78.5	6.4	15.2	100.0 (455)		
2.8	28.8	12.8	100.0 (399)	Not-knowing	48.3	5.2	46.5	100.0 (172)		

Note: The former 10 small tables are by category of Q2-1 “Do you know the NPO for satoyama conservation in your city/town?”, and the latter 2 small tables are by category of Q2-6 “Do you know satoyama conservation activity by the administration?”

Those who knew exactly what *satoyama* is make up 68% of Knowing and 49% of Not-Knowing. Those who know about the various enterprises' activities for *satoyama* conservation make up 50% of Knowing and only 17% of Not-Knowing. Those who know about the administration's activity for *satoyama* conservation make up as much as 73% of Knowing but as little as 20% of Not-Knowing.

Next, the answers to Q2-8(1) to (7) concerning the residents' impression of the three types of organization entities, i.e., NPOs, enterprises, and the administration (city/town), are collected in Table 4, where the answers "Agree" are assigned a value of +1, "Neither" 0, and "Disagree" that of -1 and evaluated by category of Q2-1 "Do you know the NPO in your city/town?" As can be seen, among those who know the NPO for *satoyama* conservation in their city/town, the NPO gives the best impression out of the three types of entities in every item, while for those who do not know the NPO, it is the administration that creates the best impression in the items of information disclosure and continuity, which means the NPO is not judged as suitable in every aspect.

Table 4 Residents' impression of *satoyama* conservation entities by recognition degree

	Number of samples	Average	score	
			Q2-1: Do you know the NPO for <i>satoyama</i> conservation in your city/town?(SA)	
			Knowing	Not-knowing
Q2-8(1): Information disclosure enough(NPO)?	582	-0.21	-0.03	-0.74
Q2-8(1): Inf. disclosure enough(enterprises)?	519	-0.48	-0.37	-0.77
Q2-8(1): Inf. disclosure enough(administration)?	592	-0.19	-0.03	-0.64
Q2-8(2): Continuity enough (NPO)?	607	0.22	0.33	-0.12
Q2-8(2): Continuity enough (enterpr.)?	532	-0.20	-0.10	-0.43
Q2-8(2): Continuity enough (admin.)?	609	0.19	0.31	-0.11
Q2-8(3): Knowl'dge & technique enough (NPO)?	580	0.38	0.46	0.14
Q2-8(3): Knowl'dge & tech. enough (enterpr.)?	514	-0.07	-0.02	-0.19
Q2-8(3): Knowl'dge & tech. enough (admin.)?	573	0.18	0.26	-0.04
Q2-8(4): Personnel enough (NPO)?	499	0.30	0.39	0.02
Q2-8(4): Personnel enough (enterpr.)?	428	-0.15	-0.05	-0.44
Q2-8(4): Personnel enough (admin.)?	506	0.00	0.10	-0.30
Q2-8(5): Fund efficiency enough (NPO)?	328	0.20	0.29	-0.12
Q2-8(5): Fund efficiency enough (enterpr.)?	280	0.04	0.14	-0.23
Q2-8(5): Fund efficiency enough (admin.)?	345	-0.00	0.11	-0.32
Q2-8(6): Coop. with residents enough(NPO)?	508	0.39	0.52	-0.06
Q2-8(6): Coop. w. res. enough(enterpr.)?	405	-0.01	0.11	-0.32
Q2-8(6): Coop. w. res. Enough(admin.)?	503	0.17	0.30	-0.27
Q2-8(7): Coop.w. other organizations (NPO)?	389	0.22	0.33	-0.17
Q2-8(7): Coop.w. other organizations (enterpr.)?	333	-0.08	0.04	-0.41
Q2-8(7): Coop.w. other organizations (admin.)?	405	0.08	0.20	-0.32

Note: Marks are by category of Q2-1 "Do you know the NPO for *satoyama* conservation in your city/town?"

The top choice for the entity suitable for conservation is, as is seen in Table 3, farmers and forest owners in both Knowing and Not-Knowing categories, making up 42% of each category. The fifth choice as the organization suitable for conservation is enterprises in both Knowing and Not-Knowing, making up 52% of the former and 41% of the latter. With regard to the amount people are willing to contribute either to the NPOs, the enterprises, or the administration, "Less than 1,000 yen" is the widespread answer in both Knowing and Not-Knowing.

Finally, we examine briefly the items that were determined to have no significant difference at the 1% or 5% level in the by-category tabulation of Q2-1 "Do you know the NPO for *satoyama* conservation in your city/town?," but to be significant in the by-category

tabulation of Q2-6 “Do you know the administration’s *satoyama* conservation activity?” In Table 3, we see that the people who agree to spend taxpayer money on *satoyama* conservation make up as much as 69% of those who know about the administration’s *satoyama* conservation activity, and 56% of even those who do not know about it. Thus, we may safely say that spending of taxpayer money on *satoyama* conservation activity is agreed upon by the residents.

With regard to the activity of the NPOs for *satoyama* conservation, those who think they are doing well make up 79% of “those who know the administration’s *satoyama* conservation activity” among those who know about the NPO, whereas this share is 48% of “those who don’t know the administration’s *satoyama* conservation activity” among those who know about the NPO. Therefore, informing the residents about the administration’s *satoyama* conservation activity will work, at the same time, to improve public opinion of the region’s NPO for *satoyama* conservation.

#### 4. Residents’ Intentions with Regard to *Satoyama* Conservation Activities and Entities

##### (1) Residents’ Intentions with Regard to *Satoyama* Conservation Entities by Region

In Q2-8(1) to (7), the residents were asked about their impressions of the three types of entities involved in *satoyama* conservation, i.e., the NPOs, the enterprises, and the

Table 5 Relation between residents' impression of *satoyama* conservation entities and their choice of organization suitable for conservation (top choice)  
Kamogawa city, by age and by occupation

	Residents' impression of <i>satoyama</i> conservation entities by age score				Residents' impression of <i>satoyama</i> conservation entities by occupation score		
	49 and under	50-69	70 and over		Agri.forest, fishery, independent	Corporation, public office, organization	the others
NPO	0.17	0.40	0.41	NPO	0.35	0.23	0.46
Enterprises	-0.33	-0.11	-0.04	Enterprises	-0.19	-0.22	-0.03
Administration	-0.17	0.17	0.31	Administration	0.11	0.00	0.26
Whole	-0.10	0.18	0.26	Whole	0.11	0.01	0.26
	Q2-9: Organization suitable for conservation (top choice)(SA) by age %(number of samples)				Q2-9: Organization suitable for conservation (top choice)(SA) by occupation %(number of samples)		
	49 and under	50-69	70 and over		Agri.forest, fishery, independent	Corporation, public office, organization	the others
Farmer/Forest owner	41.5	36.4	35.1	Farmer/Forest owner	40.5	46.5	27.8
Administration	9.4	20.7	24.6	Administration	17.7	14.1	23.7
Enterprises	1.9	0.0	1.8	Enterprises	1.3	0.0	1.0
JA/Forestry coop.	0.0	3.6	3.5	JA/Forestry coop.	2.5	0.0	5.2
NPO	47.2	39.3	35.1	NPO	38.0	39.4	42.3
Total	100.0 (53)	100.0 (140)	100.0 (57)	Total	100.0 (79)	100.0 (71)	100.0 (97)

administration. The answer “Agree” was assigned a value of +1, “Neither” 0, and “Disagree” – 1. We will examine the score for each region, comparing the results by age and occupation in Kamogawa, by occupation and annual income in Yusuhara, and by gender and age in Ena<sup>5)</sup>.

Table 5 illustrates the situation in Kamogawa city. Here, the NPOs got the highest score, followed by the administration and the enterprises, both by age and occupation. The score for all of those who work in corporations, public offices, and organizations is low (0.01). This was possibly because of the high proportion (47%) of those who think it the most suitable that *satoyama* conservation be performed by farmers and forest owners. The low score for those who are under 49 of age (– 0.10) can be similarly explained.

Table 6 illustrates the situation in Yusuhara town. Here, the administration got the highest scores both by occupation and by annual income, and the NPOs and enterprises followed it. The scores for those who work in enterprises, the administration, and organizations is low (0.05). It was possibly caused by the high proportion of these people (63%) that think it most suitable for farmers and forest owners to work on *satoyama* conservation.

Table 6 Relation between residents' impression of *satoyama* conservation entities and their choice of organization suitable for conservation (top choice)  
Yusuhara town, by occupation and by annual income

	Residents' impression of <i>satoyama</i> conservation entities by occupation score				Residents' impression of <i>satoyama</i> conservation entities by annual income (in ten thousand yen) score			
	Agri.forest, fishery, independent	Corporation, public office, organization	the others		200 or less	201–400	401–600	601 or more
NPO	0.27	0.06	0.26	NPO	0.22	0.29	0.23	–0.07
Enterprises	0.10	–0.09	0.10	Enterprises	0.00	0.13	0.06	–0.17
Administration	0.43	0.17	0.31	Administration	0.36	0.37	0.24	0.18
Whole	0.28	0.05	0.23	Whole	0.21	0.27	0.18	0.00
	Q2–9: Organization suitable for conservation (top choice)(SA) by occupation %(number of samples)				Q2–9: Organization suitable for conservation (top choice)(SA) by annual income (in ten thousand yen) %(number of samples)			
	Agri.forest, fishery, independent	Corporation, public office, organization	the others		200 or less	201–400	401–600	601 or more
Farmer/Forest owner	41.3	63.4	28.8	Farmer/Forest owner	38.5	47.9	59.1	20.0
Administration	51.3	22.0	50.8	Administration	43.1	45.1	27.3	60.0
Enterprises	0.0	2.4	6.8	Enterprises	3.1	1.4	4.5	5.0
JA/Forestry coop.	3.8	4.9	8.5	JA/Forestry coop.	9.2	4.2	4.5	0.0
NPO	3.8	7.3	5.1	NPO	6.2	1.4	4.5	15.0
Total	100.0 (80)	100.0 (41)	100.0 (59)	Total	100.0 (65)	100.0 (71)	100.0 (22)	100.0 (20)

Finally, Table 7 illustrates the situation in Ena city. In Ena, the NPOs got the highest scores both by gender and by age. However, many of the scores were negative, and the scores of all the three types of entities, i.e., the NPOs, the enterprises, and the administration, were not high. A lot of people in Ena think it most suitable that farmers and forest owners be in charge

of *satoyama* conservation; this was possibly the reason for the low scores on the whole.

Table 7 Relation between residents' impression of satoyama conservation entities and their choice of organization suitable for conservation (top choice)  
Ena city, by gender and by age

	Impression of satoyama conservation entities by gender			Impression of satoyama conservation entities by age		
	male	female		49 or under	50-69	70 or over
NPO	0.05	0.20	NPO	0.03	0.04	0.22
Enterprises	-0.29	-0.19	Enterprises	-0.24	-0.31	-0.16
Administration	-0.17	-0.13	Administration	-0.34	-0.18	0.09
Whole	-0.13	-0.03	Whole	-0.19	-0.15	0.06
	Q2-9: Organization for conservation (top choice)(SA) by gender %(number of samples)			Q2-9: Organization for conservation (top choice) (SA) by age %(number of samples)		
	male	female		49 or under	50-69	70 or over
Farmer/Forest owner	49.6	36.5	Farmer/Forest owner	46.3	46.5	44.9
Administration	17.2	11.5	Administration	6.0	14.3	27.0
Enterprises	2.6	1.9	Enterprises	3.0	2.3	2.2
JA/Forestry coop.	6.3	8.7	JA/Forestry coop.	6.0	6.9	7.9
NPO	24.3	41.3	NPO	38.8	30.0	18.0
Total	100.0 (268)	100.0 (104)	Total	100.0 (67)	100.0 (217)	100.0 (8.9)

## (2) Residents' Intentions with Regard to *Satoyama* Conservation and *Satoyama* Conservation Entities

In this section, we will examine public intentions with regard to *satoyama* conservation and conservation entities, comparing the three types of conservation, by the NPOs, by the enterprises, and by the administration.

Table 8 shows the results by region (Kamogawa city, Yusuhara town, and Ena city), and by answer category of 'Knowing' and 'Not-Knowing' to Q2-1 "Do you know the NPO for *satoyama* conservation in your city/town?" The answers were assigned numerical values-- "Agree" had a value of +1, "Neither" was 0, and "Disagree" was -1, and the average values are shown in the table.

Table 8 Residents' impression of satoyama conservation entities

	Residents' impression of satoyama conservation entities by region				Residents' impression of satoyama cons. entities by category of Q2-1 score	
	Kamogawa	Yusuhara	Ena		Knowing	Not-Knowing
NPO	0.35	0.22	0.10	NPO	0.33	-0.17
Enterprises	-0.16	0.04	-0.26	Enterprises	-0.06	-0.42
Administration	0.14	0.33	-0.15	Administration	0.18	-0.28
Whole	0.13	0.21	-0.10	Whole	0.16	-0.29

In Kamogawa and Ena, the NPO is counted on the most as a conservation entity, with the administration and the enterprises coming in second and third, respectively. In Kamogawa, especially, the NPOs' score was as high as 0.35. In contrast, in Yusuhara town, the

administration is counted on the most (0.33), with the NPOs next, and the enterprises third; the difference from Kamogawa and Ena is remarkable. Moreover, in Yusuvara, expectation with regard to *satoyama* conservation is great on the whole, while it is not so great in Ena, as is evident from the scores 0.21 and  $-0.10$  for Yusuvara and Ena respectively.

The score  $-0.10$  for the whole of Ena city, the lowest of those for the three regions, is explained by the following results. As is seen in the left half of Table 9, as much as 46% of the residents think it most suitable that farmers and forest owners conserve the *satoyama*, whereas those who think the NPO and the administration are the most suitable make up 28% and 16%, respectively, only 44% in total. This trend lowered the score for Ena in Q2-8(1) to (7), in which only the three types of entities (the NPO, the enterprises, and the administration) were the subjects. A similar explanation can also be arrived at by means of the results with regard to answers about the organizations suitable for *satoyama* conservation (two-of-five choice) in the right half of Table 9.

Next, from the right half of Table 8, we can see that people of both categories in Q2-1, i.e., those who know the NPOs for *satoyama* conservation in their city/town (Knowing) and those who do not (Not-Knowing), are most expectant that NPOs will be in charge of *satoyama* conservation, with the administration and the enterprises coming in second and third. However, we can see that the people of the Knowing category are more expectant with regard to *satoyama* conservation than people of the Not-Knowing category, as the score for the former was positive (0.16) while that of the latter was negative ( $-0.29$ ).

Table 9 Organization suitable for *satoyama* conservation

	Q2-9: Organization suitable for conservation (top choice) by region % (number of samples)				New Q2-9: Organization suitable for cons. (2 choices) by region % (number of samples)		
	Kamogawa	Yusuvara	Ena		Kamogawa	Yusuvara	Ena
Farmer/Forest owner	37.2	42.7	45.9	Farmer/Forest owner	59.4	58.3	62.0
Administration	19.2	43.8	16.1	Administration	47.5	72.9	40.6
Enterprises	0.8	2.6	2.8	Enterprises	6.5	9.9	10.1
JA/Forestry coop.	2.7	5.7	7.0	JA/Forestry coop.	15.7	33.9	29.2
NPO	40.2	5.2	28.2	NPO	67.0	20.3	54.5
Total	100.0 (261)	100.0 (192)	100.0 (386)	Total	100.0 (261)	100.0 (192)	100.0 (387)

In Q2-1, those who do not know the NPO for *satoyama* conservation in their city/town make up 32% of the whole. This means that, by ensuring that those 32% are informed about the NPO in their city/town, it may be possible to improve the perception of *satoyama* conservation and as a result to make people more expectant of *satoyama* conservation than before. It will, therefore, be necessary to endeavor to make this conservation more known through public papers or leaflets distributed in the city/town/village.

## 5. Conclusion

We have examined the public perception of and intentions with regard to *satoyama* conservation and activity towards it through the results of the questionnaire survey.

In Kamogawa city, with regard to the residents' impression of *satoyama* conservation entities, the score for the NPO is very high (0.35), followed by that for the administration and the enterprises. The NPO also got the highest proportion (40%) in answer to the question about the organization most suitable for conservation. This is probably the result of the energetic activities of the NPO in the city, which are appreciated by the residents.

In Yusuhara town, with regard to the residents' impression of *satoyama* conservation entities, the score for the administration (0.33) is the highest, followed by the NPO and the enterprises. The administration also got the highest proportion (41%) of answers to the question about the organization most suitable for conservation. In this town, consciousness with regard to *satoyama* conservation is high as a whole, but expectation with regard to the NPO is lower than with regard to the administration and the farmers and forest owners. It is anticipated that NPO activities will be difficult in the super-aging regions, as is the case in Yusuhara.

In Ena city, with regard to the residents' impression of *satoyama* conservation entities, the score for the NPO (0.10) is highest but lower than that in the other regions. In addition, the score for all the three entities for *satoyama* conservation (the NPO, enterprises, and the administration) is a negative value ( $-0.10$ ). This is because as much as 46% of the people in Ena think that farmers and forest owners are the most suitable conservators and those who think the NPO or the administrations are most suitable are 28% and 16% respectively, that is, only 44% in total.

For all the three regions, both those who know and who do not know about the NPO for *satoyama* conservation in their city/town expect conservation to be taken over by the NPO, with the administration and the enterprises coming in second and third. However, those who know about the NPO gave a positive score (0.16) for all the three entities for *satoyama* conservation (the NPO, enterprises, and the administration), while those who do not know it gave a negative score ( $-0.29$ ). Considering that 32% of the public do not know about the NPO, it is possible to improve the perception of *satoyama* conservation and, as the result, to increase the expectation of *satoyama* conservation by informing these 32% of the residents about the NPO for *satoyama* conservation in their city/town. It will be necessary to give them more information by means of distribution of papers and leaflets.

Similarly, in the overview of the three regions, those who think NPOs are doing well in

their conservation work make up 79% of “those who know the administration’s *satoyama* conservation activity” among those who know about the NPO, whereas this figure is 48% of “those who don’t know the administration’s *satoyama* conservation activity” among those who know about the NPO. Therefore, informing the residents of the administration’s *satoyama* conservation activity will also work to improve the public opinion with regard to the region’s NPO for *satoyama* conservation.

Indeed, the feeling of the local residents that the farmers and forest owners are most suitable to take over *satoyama* conservation is thus very deep-rooted, but it is clear that in regions where urbanization is steadily developing like Kamogawa and Ena, the NPOs are expected to perform *satoyama* conservation more than the other entities. Therefore, we should consider the NPOs’ way of working for *satoyama* conservation even more deeply when we think about the way to conserve *satoyama* in the future.

## NOTES

- 1) To decide the survey target regions, we set the following conditions: 1) it is not to be located on the fringe of an urban zone, 2) there is an NPO for *satoyama* conservation activity in the region, and 3) there are also enterprises (in this case, a big pharmaceutical company) that take part in *satoyama* conservation. From among those that satisfy the conditions, two cities and a town were selected: Kamogawa city in Chiba prefecture, Yusuhara town in Kochi prefecture, and Ena city in Gifu prefecture. In these regions, aging is advancing; in Yusuhara town, the aging rate is as high as 37%, and *satoyama* conservation by local farmers and forest owners is difficult. In Kamogawa city, the leading NPO is very active. In Ena city, the NPO has just been granted juridical person. Because of these different features, the three regions were judged to be adequate for the questionnaire survey concerned with *satoyama* conservation and activities around it.
- 2) Numbers of distribution were determined by the population ratio of the target regions.
- 3) The following are the 47 questions: Q1-1: Do you know *satoyama* existing in your city/town? (SA), Q1-2: Have you been to the *satoyama*? (SA), Q1-3: For what purpose did you go there? (MA), Q1-4: What is your impression of the *satoyama*? (MA), Q1-5: Did you know the explanation of *satoyama*? (SA), Q1-6: Do you know taxpayer money is spent on *satoyama* conservation? (SA), Q1-7: What is the desirable method of conserving *satoyama* in your city/town? (MA), Q1-8: What is the value and charm of *satoyama*? (MA), Q1-9: What is the reason we have to give up *satoyama* conservation? (MA), Q2-1: Do you know the NPO for *satoyama* conservation in your city/town? (SA), Q2-2: How did you get to know the NPO? (MA), Q2-3: What do you think about the NPO activity? (SA), Q2-4: Do you know the *satoyama* conservation activity by the enterprises? (SA), Q2-5: How did you get to know the *satoyama* conservation activity by the enterprises? (MA), Q2-6: Do you know the *satoyama* conservation activity by the administration? (SA), Q2-7: How did you get to know the *satoyama* conservation activity by the administration? (MA), Q2-8(1): Is the information disclosure enough (the NPO)? (SA), Q2-8(1): Is the information disclosure enough (the enterprise)? (SA), Q2-8(1): Is the information disclosure enough (the administration)? (SA), Q2-8(2): Is the continuity enough (the NPO)? (SA), Q2-8(2): Is the continuity enough (the enterprise)? (SA), Q2-8(2): Is the continuity enough (the administration)? (SA), Q2-8(3): Are knowledge and technique enough (the NPO)? (SA), Q2-8(3): Are knowledge and technique enough (the enterprise)? (SA), Q2-8(3): Are knowledge and technique enough (the administration)? (SA), Q2-8(4): Are personnel enough (the



- NPO)? (SA), Q2-8(4): Are personnel enough (the enterprise)? (SA), Q2-8(4): Are personnel enough (the administration)? (SA), Q2-8(5): Is fund efficiency enough (the NPO)? (SA), Q2-8(5): Is fund efficiency enough (the enterprise)? (SA), Q2-8(5): Is fund efficiency enough (the administration)? (SA), Q2-8(6): Is the cooperation with the residents enough (the NPO)? (SA), Q2-8(6): Is the cooperation with the residents enough (the enterprise)? (SA), Q2-8(6): Is the cooperation with the residents enough (the administration)? (SA), Q2-8(7): Is the cooperation with the other organizations enough (the NPO)? (SA), Q2-8(7): Is the cooperation with the other organizations enough (the enterprise)? (SA), Q2-8(7): Is the cooperation with the other organizations enough (the administration)? (SA), Q2-9: What organization is suitable for conservation (the top choice)? (SA), Q2-9: What organization is suitable for conservation (the second choice)? (SA), Q2-9: What organization is suitable for conservation (the third choice)? (SA), Q2-9: What organization is suitable for conservation (the fourth choice)? (SA), Q2-9: What organization is suitable for conservation (the fifth choice)? (SA), New Q2-9: What organizations are suitable for conservation (two choices)? (MA), New Q2-9: What organizations are suitable for conservation (three choices)? (MA), Q3-1: What is the willing contribution amount to the NPO? (SA), Q3-2: What is the willing contribution amount to the enterprise? (SA), Q3-3: What is the willing contribution amount to the administration? (SA)
- 4) To help the respondents who do not know the *satoyama* in their city/town to understand what *satoyama* is like, a picture of *satoyama* landscape and a simple explanation were inserted before the questions in the questionnaire. Some examples and explanations of activities carried out by the NPO, the enterprises, and the administration of each region were also referred to so that the respondents could obtain some basic information before answering.
- 5) The 37 question items that enable cross tabulation were cross-tabulated respectively by region (Kamogawa, Yusuhara, and Ena), with regard to six attribute items, i.e., gender, age, number of household members, years of residence, occupation, annual income (not seven, as region is excluded), and the independence tests were applied. The result was that, in Kamogawa, the number of question items significant at the 1% or 5% level was high in the by-age tabulation (12 items) and in the by-occupation tabulation (10 items). In Yusuhara, it was high in the by-occupation and by-age tabulations (8 items in both), and in Ena, it was high in the by-gender tabulation (14 items) and in the by-age tabulation (8 items). Therefore, we decided to examine the result, comparing, respectively, by age and by occupation in Kamogawa, by occupation and by age in Yusuhara, and by gender and by age in Ena.

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